

# **\*\*ATTENTION\*\***

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## **Rainbow Trout and Steelhead**

*Oncorhynchus mykiss*

### **Range:**

The native range of rainbow trout was from the eastern Pacific Ocean and the fresh water, mainly west of the Rocky Mountains, from northwest Mexico, to the Kuskokwim River, Alaska. Following its widespread introduction outside its normal range, it now occurs throughout the United States in all suitable localities (Scott and Crossman 1973).

### **Washington Distribution:**

In western Washington, resident and anadromous (steelhead) rainbow trout are present in most drainages of Puget Sound, coastal streams, and the lower Columbia River. East of the Cascade Mountains they are found in tributaries of the Columbia drainage and tributaries of the Snake River (Scott and Crossman 1973, Wydoski and Whitney 1979).

### **Habitat Requirements:**

Rainbow trout and steelhead (when in freshwater) inhabit river bottoms in riffle and pool areas in summer and pools during other seasons. They both prefer cool water and plenty of oxygen. If the water temperature in lakes exceeds 21 degrees C (70 degrees F), rainbow trout will move to deeper and cooler water. Both rainbow trout and steelhead are tolerant of a wide range of salinities (Scott and Crossman 1973, Wydoski and Whitney 1979).

Rainbow trout and steelhead deposit their eggs in redds on bottoms consisting of fine gravel, and larger (12 cm or 5") rocks, respectively, in well oxygenated running water. Lake populations of rainbow trout move into tributaries to spawn. Newly hatched fry are found in the peripheral waters of pools until they become large enough to maintain themselves in the current riffles. Steelhead will migrate to saltwater at one to three years of age (Scott and Crossman 1973, Wydoski and Whitney 1979).

Preferred food of rainbow trout and juvenile steelhead consists of organisms associated with the bottom such as aquatic insects including diptera, mayflies, stoneflies, and beetle larvae, amphipods, aquatic worms, and fish eggs (Scott and Crossman 1973, Wydoski and Whitney 1979).

### **Limiting Factors:**

Stream temperatures which exceed the normal spawning range, a lack of spawning habitat, high sedimentation in spawning areas, and/or a lack of preferred food items will also limit the population and range of rainbow trout and steelhead. Exposure to heavy metals and other pollutants can inhibit migratory behavior.

#### Management Recommendations:

The maintenance of riparian vegetation is essential for controlling stream temperature, providing cover, and protecting against lateral erosion. Removal of streamside vegetation lowers canopy density (shading) and increases sedimentation. Increases in solar radiation raises stream temperatures thereby negatively impacting spawning, hatching, and rearing survival. Increased sedimentation contributes to the loss of spawning habitat and decreases the diversity of aquatic invertebrates and other food items (Newbold et al. 1980, Noss 1983, Heede 1985). Buffer zones along stream banks should be at least the width of the height of the tallest tree or 15.2 m (50 ft), whichever is wider. The vegetative buffer will provide erosion control, and maintain natural stream temperatures and diversity of aquatic invertebrates (Meehan et al. 1977, Newbold et al. 1980). In Washington, this can range up to 60 m (200 ft.). This "zone of influence" (Meehan et al. 1977) should be maintained along stream banks which provide rainbow trout and steelhead habitat, and any other stream which directly or indirectly influences rainbow trout and steelhead. Road construction and maintenance activities should be avoided adjacent to streams with rainbow trout and steelhead. In-stream structures such as bridges, piers, boat ramps, or culverts must not impede the natural movements of rainbow trout and steelhead.

#### References:

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Meehan, W.R., F.J. Swanson, and J.R. Sedell. 1977. Influences of riparian vegetation on aquatic ecosystems with particular reference to salmonid fishes and their food supply. P. 137-145 in Proceed. Symp. on the Importance, Preservation, and Management of the Riparian Habitat, July 9, 1977, Tucson, AZ.

Newbold, J.D., D.C. Erman, and K.B. Roby. 1977. Effect of logging on macroinvertebrates in streams with and without buffer strips. J. Fish. Aquat. Sci. 37:1076-1085.

Noss, R.F. 1983. A regional landscape approach to maintain diversity. BioSci. 33(1):700-706.

Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Fish. Res. Bd. Canada. Bull. 14.

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#### Key Points:

##### Habitat Requirements:

- Rainbow trout and steelhead inhabit river bottoms in riffles and pools in

summer and pools during the other seasons.

- Rainbow trout and steelhead spawn in redds on bottoms consisting of fine gravel, and larger (4-5") rocks, respectively, in well oxygenated running water.
- Newly hatched fry are found in peripheral waters of pools.
- Preferred food consists of bottom dwelling organisms.

#### Management Recommendations:

- Buffer zones of at least the width of the height of the tallest tree should be maintained along stream banks which provide rainbow trout and steelhead habitat, and any other stream which directly or indirectly influences rainbow trout and steelhead habitat.
- Road construction and maintenance activities should be avoided adjacent to streams which provide rainbow trout and steelhead habitat.
- In-stream structures such as bridges, piers, boat ramps, or culverts must not impede the natural movements of rainbow trout and steelhead.
- Waters inhabited by steelhead parr should not be treated with metal based herbicides during the period March 1 - June 15.